

Automeris liberia (Bullseye Moth)

Order: Lepidoptera (Butterflies and Moths)

Class: Insecta (Insects)

Phylum: Arthropoda (Arthropods)



Fig. 1. Bullseye moth, *Automeris liberia*

[<http://www.learnaboutbutterflies.com/Amazon%20-%20Automeris%20liberia.htm>, downloaded 5 April 2015]

TRAITS. The adult *Automeris liberia* is sexually dimorphic which means that the male and female exhibit different characteristics (Walker, 1855). The female has brown forewings with orange colouring on the hind wings (Fig. 1), whereas the male has a yellow coloured forewing with orange on the hind wing. On the female's hind wing is an ocellus which is a large false eye of white and black, and the male shows a smaller and less round false eye. These ocelli are an indication of the moth using Batesian mimicry, this is when a harmless organism exhibits features of a harmful organism (Strategies for survival, 2015). The caterpillar is green with two white and red stripes along its sides, and there are also spikes protruding from its body (Fig. 2), which is also for protection (Caterpillars of the world, 2015).

DISTRIBUTION. *Automeris liberia* is widespread through South America in countries such as Ecuador and Peru even in some parts of Mexico at altitudes of 400-1500m (Caterpillars of the world, 2015). They are also abundant at higher altitudes in Trinidad (Fig. 3).

HABITAT AND ACTIVITY. The bullseye moths can be active in both dusk and dawn and night time. The bullseye moth can be mainly found in neotropical habitats such as rainforest, woodlands or cloud forest at altitudes between 400-1500m (Mariau, 2001).

FOOD AND FEEDING. The bullseye moths are herbivorous insects which feed on the leaves or nectar of plants. The caterpillars of *Automeris liberia* in the early instar stages are gregarious which means that they feed in groups. The juveniles are also polyphagous feeders, meaning they can feed on various foods, including *Salix*, *Quercus* and *Gleditsia* leaves (Caterpillars of the world, 2015). The adult *Automeris liberia* unlike its juveniles are solitary eaters which feed on nectar.

POPULATION ECOLOGY. *Automeris liberia* can be seen in related groups when they are in the early instar caterpillar stage, with approximately 30 individuals together, however in the adult stage they are solitary (Barrows, 2011). After emerging from the cocoon the moth lives for two weeks, when the moths find mates and lay eggs. The female moth lays about 30-35 eggs on leaves of either the *Salix*, *Quercus* or *Gleditsia*. The caterpillars act as host to parasites such as the wasp *Apanteles hemileucae*, used as a place to lay their eggs (Barrows, 2011).

REPRODUCTION. The *Automeris liberia* female lays hundreds of eggs, with approximately 30-35 eggs per leaf, this is done five days after mating and lasts 90 minutes. The females lay their eggs on the leaves of plants which the newly hatched caterpillar could feed upon (Barrows, 2011). When the caterpillar hatches from the egg it undergoes five instar during the caterpillar stage which is four weeks, each instar represents the moulting of the caterpillar (Caterpillars of the world, 2015). The caterpillar then spins itself into a cocoon for about 4 weeks until it emerges as an adult. The only parental care which is given, is done by the mother during laying of the eggs. The total life span of a moth is approximately 8-9 months which includes the caterpillar stage, cocoon and adult stages (Walker, 1855).

BEHAVIOUR. The caterpillar's bright green colour acts as aposematic coloration, which is a warning to predators that it is dangerous to consume it. The juvenile *Automeris liberia* when predated upon also drops off the leaves to avoid be eaten (Caterpillars of the world, 2015). The adult bullseye moth exhibits Batesian mimicry which is the false eyes that resembles the eyes of a predator and when it senses danger it reveals the once hidden false eyes and twitches so that the predator is caught off guard this moment is when the moth would escape. Communication between the moths occurs through pheromones produced by the adult females to attract the males for mating (Barrows, 2011).

APPLIED ECOLOGY. The feeding on leaves by both stages of *Automeris liberia* causes it to be classified as a pest (Mariau 2001). The caterpillars' spikes can cause pain, irritation and hives when humans come into contact with it.

REFERENCES

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- Walker, Francis. 1855 List of the specimen of lepitoptera insects in the collection of british museum: lepitoptera Heterocera.

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Fig. 2. *Automeris liberia* in its caterpillar stage.

[<http://www.learnaboutbutterflies.com/Amazon%20-%20Automeris%20liberia.htm>, downloaded 5 April 2015]



Fig. 3. Distribution of *Automeris liberia*, represented by the yellow dots.

[<http://www.discoverlife.org/20/m?kind=Automeris+liberia>, downloaded 5 April 2015]

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